



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/054,595	01/22/2002	Donald Pannell	MP0078	7132
26703	7590	11/15/2005	EXAMINER WONG, WARNER	
HARNESS, DICKEY & PIERCE P.L.C. 5445 CORPORATE DRIVE SUITE 400 TROY, MI 48098			ART UNIT 2668	

DATE MAILED: 11/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/054,595

Applicant(s)

PANNELL, DONALD

Examiner

Warner Wong

Art Unit

2668

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 22 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-84 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 12-20, 25-33, 38-46, 51-54, 56-62, 67-70, 72-78, 83-84 is/are rejected.
- 7) ☒ Claim(s) 8-11, 21-24, 34-37, 47-50, 55, 63-66, 71 and 79-82 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to because fig. 1-3 should each indicate that it is a prior art as according to the description of drawings in paragraphs 18-20 of the specification.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

Art Unit: 2668

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-2, 6, 12, 14-15, 19, 25, 27-28, 32, 38, 40-41, 45 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim in view of Halsall ("Data Communications, Computer Networks and Open Systems", 1992).

Regarding claims 1, 14, 27, 40, Kim describes a processing system/apparatus/method (official notice taken that it can be incorporated by a computer media embodying instructions) using the (half-duplex) channel CSMA/CD standard comprising:

a dynamic backoff access module (controller) (paragraph 45, claim 1).

a buffer (transmitter) transmits a received second frame before retransmitting the first frame when the second frame has a higher class of service (COS) than the first frame (paragraph 16).

Kim lack explicitly what Halsall describes as initial steps in performing CSMA/CD:

(the transmitter) transmitting a first frame; (p. 261)

(controller) terminating transmission of the first frame when a collision is detected during the transmission; (p. 261-262)

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to explicitly describe the CSMA/CD steps of Halsall in Kim. The motivation being that Kim supports the CSMA/CD standard.

Regarding claims 2, 15, 28, 41, Kim and Halsall combined describe all limitations set forth in claim 1. Halsall further describes:

Sending a jam signal (before transmitting another frame) (p. 262).

Regarding claims 6, 12, 19, 25, 32, 38, 45, and 51, Kim and Halsall combined describe all limitations set forth in claim 1.

Kim further describes:

computing a back-off period after terminating the transmission of the first frame (paragraphs 38-39);

retransmitting the first frame when the back-off period has elapsed (whether or not there are frames of higher class of service than the first frame ready for transmission) (paragraphs 40-41).

2. Claims 3-4, 16-17, 29-30, 42-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim in view of Halsall, and further in view of Krishna (5,822,538).

Regarding claims 3, 16, 29, 42, Kim and Halsall combined describe all limitations set forth in claims 1, 14, 27 and 40 respectively.

Kim and Halsall lack what Krishna explicitly describes as a prior art a well-known TBEB algorithm for the backoff process:

after terminating the transmission, incrementing an attempt count (by inherent counter);

discarding the first frame when the attempt count exceeds a predetermined attempt threshold (col. 1, lines 40-50).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to incorporate a limit to the number of frame transmission attempts to the method/apparatus/switch from the combination of the CSMA/CD standard and Kim and Halsall. The motivation being that such incorporation prevent unbound transmission from input frame build-ups, leading to system overload and failure.

Regarding claims 4, 17, 30, 43, Kim and Halsall combined describe all limitations set forth in claims 1, 14, 27 and 40 respectively.

Kim further describes that there are different priorities (COS) for input frames/cells (paragraph 16).

Kim and Halsall combined lack what Krishna describes:

after terminating the transmission, incrementing an attempt count (by inherent counter);

discarding the first frame when the attempt count exceeds a predetermined attempt threshold for the class/QOS of service of the first frame (col. 1, lines 43-50, with a max. of 16 times, applicable for all classes).

It would have been obvious to one with ordinary skill in the art at the time of invention to incorporate a limit to the number of frame transmission attempts to the

Art Unit: 2668

method/apparatus/switch of Kim and Halsall. The motivation being that such incorporation controls and prevents unbound input frame build-ups, leading to device overload and failure.

3. **Claims 5, 18, 31, 44** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim in view of Halsall as applied to claim 1 above, and further in view of Krishna and Hazu (5,455,841).

Kim and Halsall combined describe all limitations set forth in claims 1, 14, 27 and 40 respectively.

Kim and Halsall lack what Krishna describes:

after terminating the transmission, incrementing the attempt count (by inherent counter) (col. 1, lines 43-50);

discarding the first frame when the attempt count exceeds a predetermined attempt threshold;

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to incorporate a limit to the number of frame transmission attempts to the method/apparatus/switch of Kim and Halsall. The motivation being that such incorporation controls and prevents unbound input frame build-ups, leading to device overload and failure.

Kim, Halsall, and Krishna lack what Hazu describes:

(discarding only if) the class of service of the first frame falls below a predetermined discard threshold (col. 4, lines 64-66 and col. 5, lines 1-2, "The lower cell

Art Unit: 2668

loss priority [threshold] indicates that the cell .. can be discarded when the network overflowed, and the higher cell loss priority indicates that the cell .. cannot be discarded under any circumstances.”)

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to incorporate a discard threshold (Cell Loss Priority) for each COS. The motivation being that such incorporation controls and prevents unbound input frame build-ups, leading to device overload and failure.

4. **Claims 7, 13, 20, 26, 33, 39, 46, 52** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim in view of Halsall as applied to claim 6, and further in view of Krishna.

Kim and Halsall combined describe all limitations set forth in claims 6, 12, 19, 25, 32, 38, 45 and 51 respectively.

Kim and Halsall lack what Krishna describes:

Computing the back-off period as a function of the class of service (i.e. priority) (fig. 2B, #74, 80,82).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to incorporate a back-off period as a function of class of service. The motivation being that transmission frames with higher priority may be time-sensitive and should be attempted to retransmit first, which in turn should have a small back-off period than lower priority frames.

Art Unit: 2668

5. Claims 53-54, 56, 61, 67, 69,70,72,77 and 83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saxena (2003/0103517) in view of Halsall and Kim.

Regarding claims 53 and 69, Saxena describes an Ethernet (i.e. IEEE 802.3 or CSMA/CD per IEEE working group definition) based switch comprising:

a first/second port (fig. 1, #105a/105c) in communication with a first half-duplex channel (half-duplex inherent from Ethernet definition);

a memory (fig. 1, #125);

wherein the first port communicates with the second port via the memory (paragraph 21);

wherein the first/second port comprises:

a first/second transmitter to transmit data over the first half-duplex channel (inherent in ports that transmit);

a first/second controller (fig. 1, #130a/130c);

Saxena lacks what Halsall describes:

(the first/second transmitter) transmitting a first/third frame; (p.261)

(the first/second controller) terminating [the first/second transmitter from] transmission of a first/second frame [of the data] when a collision is detected during the transmission (p.261-262).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to explicitly describe the CSMA/CD steps of Halsall in Saxena. The motivation being that Saxena supports the Ethernet (i.e. CSMA/CD) standard.

Art Unit: 2668

Saxena and Halsall combined lack what Kim describes:

determine a class of service (set a priority) for each frame after termination of transmission from collision (paragraph 16);

the first/second transmitter transmits a second/fourth frame before retransmitting the first/third frame when the second/fourth frame has a higher class of service (COS) than the first frame (paragraph 16).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to incorporate Kim's prioritization in frame transmission to the Ethernet switch of Saxena and Halsall. The motivation being that transmission frames with higher priority may be time-sensitive and should be transmitted first.

Regarding claims 54 and 70, Saxena, Halsall and Kim combined describes all limitations set forth in claims 53 and 69 respectively.

Saxena further describes:

a (first) memory portion to store the first and second frames and another/second memory portion to store the third and forth frames (paragraph 23, where copies of received data frame has particular locations);

Regarding claims 56 and 72, Saxena, Halsall and Kim combined describe all limitations set forth in claim 53 and 69 respectively. Halsall further describes:

Sending a jam signal (before transmitting another frame) (p. 261)

Regarding claims 61, 67, 77 and 83 Saxena, Halsall and Kim describe all limitations set forth in claims 53 and 69 respectively.

Kim further describes:

computing a back-off period after terminating the transmission (whether or not there are frames of higher class of service than the first frame ready for transmission) (paragraph 38-39);

retransmitting the first frame when the back-off period has elapsed (paragraph 40-41).

6. Claims 57-59 and 73-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saxena in view of Halsall and Kim, and further in view of Krishna (5,822,538).

Regarding claims 57 and 73, Saxena, Halsall and Kim combined describe all limitations set forth in claim 1.

Saxena, Halsall and Kim lack what Krishna describes as a prior art a well-known TBEB algorithm for backoff:

after terminating the transmission, incrementing an attempt count (**by an inherent counter**) [for discarding excess-attempted frames] (col. 1, lines 40-50).

It would have been obvious to one with ordinary skill in the art at the time of invention to incorporate a limit to the number of frame transmission attempts to the switch. The motivation being that such incorporation prevents unbound transmission from input frame build-ups, leading to system overload and failure.

Regarding claims 58 and 74, Saxena, Halsall, Kim and Krishna combined describe all limitations set forth in claim 57.

Krishna further describes as a prior art a well-known TBEB algorithm for backoff:

after terminating the transmission, incrementing an attempt count;
discarding the first frame when the attempt count exceeds a predetermined attempt threshold (col. 1, lines 40-50).

Regarding claims 59 and 75, Saxena, Halsall, Kim and Krishna combined describe all limitations set forth in claim 57.

Krishna further describes:

after terminating the transmission, incrementing an attempt count (by inherent counter);

discarding the first frame when the attempt count exceeds a predetermined attempt threshold for the class/QOS of service of the first frame (col. 1, lines 43-50, with a max. of 16 times, applicable for all classes).

7. **Claims 60 and 76** are rejected under 35 U.S.C. 103(a) as being unpatentable over Saxena in view of Halsall and Kim as Krishna as applied to claims 57 and 73 above respectively, and further in view of Hazu (5,455,841).

Saxena, Halsall, Kim and Krishna combined describe all limitations set forth in claim 57.

Krishna further describes:

after terminating the transmission, incrementing the attempt count (by inherent counter) (col. 1, lines 43-50);

discarding the first frame when the attempt count exceeds a predetermined attempt threshold;

Saxena, Halsall, Kim and Krishna lack what Hazu describes:

(discarding only if) the class of service of the first frame falls below a predetermined discard threshold (col. 4, lines 64-66 and col. 5, lines 1-2, "The lower cell loss priority [threshold] indicates that the cell .. can be discarded when the network overflowed, and the higher cell loss priority indicates that the cell .. cannot be discarded under any circumstances.")

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to incorporate a discard threshold (Cell Loss Priority) for each COS. The motivation being that such incorporation controls and prevents unbound input frame build-ups, leading to device overload and failure.

8. **Claims 62, 68, 78 and 84** are rejected under 35 U.S.C. 103(a) as being unpatentable over Saxena in view of Halsall and Kim set forth in claims 61, 67, 77 and 83 respectively, and further in view of Krishna.

Saxena, Halsall and Kim combined describe all limitations set forth in claims 61/67.

Saxena, Halsall and Kim lack what Krishna describes:

Computing the back-off period as a function of the class of service (priority) (fig. 2B, #74, 80, 82).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to incorporate a back-off period as a function of class of service. The motivation being that transmission frames with higher priority may be time-sensitive

Art Unit: 2668

and should be attempted to retransmit first, which in turn should have a small back-off period than lower priority frames.

Allowable Subject Matter

9. Claims 8-11, 21-24, 34-37, 47-50, 55, 63-66, 71 and 79-82 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Warner Wong whose telephone number is 571-272-8197. The examiner can normally be reached on 5:30AM - 2:00PM, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Warner Wong
Examiner
Art Unit 2668

WW

Chieh M. Fan

**CHIEH M. FAN
PRIMARY EXAMINER**